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Telus not out of BCE race yet

Nothing stopping B.C. telecom from taking another stab at merging country's top 2 phone companies

RITA TRICHUR
BUSINESS REPORTER

The official auction for telecommunications giant BCE Inc. may be over, but Telus Corp. could still stop the final gavel from falling on a \$51.7 billion bid by investors led by the Ontario Teachers' Pension Plan.

BCE endorsed Teachers' takeover proposal but confirmed there is nothing barring its B.C.-based rival

from taking another stab at merging Canada's top two telephone companies.

Chief executive Michael Sabia said BCE's board holds "a strong conviction" the Teachers-led deal is the best path forward but acknowledged that Telus could re-emerge with an offer of its own.

"Our board has, obviously, a fiduciary obligation to continue to be open to superior proposals, should

a superior proposal arise," Sabia told reporters during a weekend conference call.

A Telus spokesperson could not be reached for comment.

The Vancouver-based company, which had initially mulled making its own cash-and-stock bid, abruptly exited the auction last week, blaming "the inadequacies of BCE's bid process." Its last-minute withdrawal stunned investors and analysts alike because the company had officially acknowledged its interest in acquiring BCE just the prior week.

When asked what went wrong, BCE executives pointed to a key disagreement over the handling of confidential information between the two companies.

"The delays of which Telus complained are in fact a complaint that BCE would not share extremely sensitive and confidential information directly with senior Telus executives," said BCE chairman Richard Currie.

He added: "We did insist on a clause that Telus would not be able

BCE continued on B4

CLEAN BREAK

Is metering plan really so smart?

TYLER HAMILTON
ENERGY REPORTER

Large information-technology projects aren't the easiest things to design and deploy, particularly if they're supposed to last a long time. You have to anticipate where technology is going, and then do your best to future-proof the outcome by making the system open enough to evolve.

The public sector struggles in this area. Too often, millions of dollars are spent on technology that's obsolete before the project is complete. Suddenly you've got a boondoggle on your hands, headlines that scream "Public Funds Wasted," and angry taxpayers to contend with.

It's something publicly owned utilities must consider as they roll out the province's much-touted smart meter program, as well as so-called demand management services aimed at reducing peak power consumption.

By year's end, about 800,000 smart meters will be installed across the province. Are these devices and the advanced metering infrastructure built to support them flexible enough to handle tasks that, while not required today, might be desirable three or four years down the road?

It's a question Pacific Gas & Electric, one of the largest utilities in the United States, is asking itself. The company revealed last week that it has decided to look at new technologies used in its smart meter program because it wanted to "evaluate their ability to address potential future functionality."

The problem is that the company already has a contract with St. Louis-based ESCO Technologies, which saw its share price plunge after PG&E's decision.

Ontario's energy ministry and local electric utilities might take this as a wake-up call, because it's not entirely clear that "potential future functionality" has been adequately considered in the design of the province's smart meter program. The fact that the sector is running to meet a political deadline hasn't helped matters.

"They're rushing into this, basing their decisions on old technology," says one industry source closely following the program. "Now you have a hodgepodge of non-uniform technologies across Ontario. What happens if technology changes or a vendor goes belly up? All that infrastructure is wasted."

Consider the Peaksaver program started by Toronto Hydro and now being deployed across Ontario through the Ontario Power Authority. The system, based largely on a proprietary technology called Yukon (offered by Cooper Power Systems of Minneapolis), gives utilities a way to remotely control the air conditioners and other power-hun-

HAMILTON continued on B4

THINKING BIG



CARLOS OSORIO/TORONTO STAR

From left, Stephen Abrams, president of Quantum Dental Technologies, Jose Garcia, Anna Matvienko, Raymond Jeon, Andreas Mandelis and Adam Hellen, with the diagnostic device the company is hoping to sell to the dentistry industry by the fall of 2009.

A Quantum leap for treating tooth decay

Local dentistry start-up develops laser prototype to better detect cavities

TYLER HAMILTON
BUSINESS REPORTER

We all know the drill.

Your tooth hurts. You go to the dentist, an x-ray is done, and a cavity is found.

The next step is usually drill, fill and bill, after which you head back to work with a numb lip and drool running down your chin.

Charming.

Toronto dentist Stephen Abrams, president of local start-up Quantum Dental Technologies, says the industry's approach to dentistry is backwards, and has been for decades.

"The analogy we use is gangrene,"

says Abrams, a practising dentist for more than 25 years.

"When do you want to treat gangrene: when you have to lob off a limb, or when you catch it early? Dentistry figures it's been doing a great job, but what we've been doing is chopping off limbs all these years."

In a way the profession has had little choice. The standard for detecting tooth decay, or "caries," is through manual probing and x-rays, both of which are of limited use if the decay is below the surface of the tooth. Detecting early demineralization, a precursor to decay, is even more challenging.

Once a cavity has formed and exposed itself on the surface, it's too late — it has to be cleaned out and filled.

Abrams says the industry needs to take a more preventative approach,

and this is where Quantum Dental enters the scene. The company's research team, based out of the University of Toronto, has developed a prototype of a laser device that uses heat and light waves to detect tiny, below-surface lesions in teeth without exposing a patient to potentially harmful radiation.

A commercial prototype is scheduled to be launched next summer and, after a year of clinical testing, the company hopes to begin selling the device in the fall of 2009.

Dentists will still need x-rays to look at jawbone structure, but Abrams believes Quantum's device has the potential to be a fixture in every dentist's office. The absence of radiation means it can be a standard offering whenever someone gets in the dentist's chair, improving the chance of catching early-stage tooth decay before it becomes

a bigger problem.

"What this device does is put Canada on the map when it comes to preventative-based (dental) research," says Quantum co-founder Andreas Mandelis, a professor of industrial, mechanical and electrical engineering at the U of T's Centre for Advanced Diffusion Wave Studies.

The genesis for Quantum's laser device began, not surprisingly, in a dental clinic seven years ago. Mandelis went to see Abrams to get his teeth checked out, during which the veteran dentist began lamenting how his profession was a laggard in preventative care.

It was a mouthful, and Mandelis was literally a captive audience. But after regaining power of speech he suggested he could help.

TEETH continued on B3

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TORONTO STAR
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Part 2
of our 4-part
series

Laser can spot cavities before they do damage

TEETH from B1

After all, the U of T academic was a world-recognized expert in thermophotonics — specifically, he studied the use of high-tech lasers to detect defects in metals and other materials. There's no reason, Mandelis figured, such a technique couldn't be adapted for assessing the health of teeth.

The two men approached the Ontario Centres of Excellence (OCE), a government agency focused on innovation. It liked the idea and decided to contribute early funding to kick-start product development. The U of T and Abrams, through his own consulting company, also helped finance the necessary research.

Tests from a lab prototype have proven the effort worthwhile. Between the teeth, considered one of the most difficult places to detect cavities, the technology can consistently spot lesions as tiny as 50 microns. That's about half the diameter of a strand of human hair.

It can also spot signs of tooth demineralization and decay up to 5 millimetres below the surface of a tooth and under fillings. Generally, you need to lose roughly 30 per cent of the mineral in an area of your tooth before it starts showing up on an x-ray.

If a problem area is found early enough, it's possible to remineralize the tooth using special treatments of gels and pastes. In other words, no need for needles and drilling.

"This is turning out to be a very good venture," says Mandelis, who beams with pride when talking about the outcome of his team's research. "I never thought it would work out like this."

The device works by aiming a small hand-held laser at a tooth, which is exposed to pulses of near-infrared light. This causes the tooth to glow and release heat. A special

infrared detector measures the wavelengths of light and heat that are emitted from the tooth. Healthy teeth produce a specific wavelength signature, so any deviations can be analyzed to pinpoint hidden lesions and early breakdown of mineral.

This process is repeated at various tooth depths simply by changing the frequency of the laser.

Abrams emphasizes that while the measurement of heat is involved, it doesn't pose any harm to the patient. Throughout the process the temperature of a person's tooth will rise by a barely detectable 2C. And again, no harmful radiation is present, so the test can be done every six months.

Quantum is collaborating with groups in Texas, Holland and England on field tests. It's also looking to get follow-up funding from the OCE and partnerships — strategic and financial — that will help get its commercial prototype to market.

"We're still looking for an interested manufacturer, venture capitalists and other partners," says Abrams.

Bob Civak, interim managing director for the OCE's centre for materials and manufacturing, says Quantum has the right people leading it: a visionary dentist with decades of experience and a world-renowned university researcher.

"Stephen saw the vision and was able to understand the possibilities, and Andreas was able to understand how he could use this technology to detect dental caries," says Civak.

"Now, it's really about going into the commercial phase where you're trying to turn that working device into an instrument that could find its way into dental offices around the globe. Even a low adoption rate is a huge market, because there are so many dental offices in existence."

And that, as any dentist will tell you, is something to smile about.

Q&A WITH STEPHEN ABRAMS

Q: What were your total sales and profits in your last corporate year?

A: Quantum is a Canadian start-up company that is in the final stages of developing its device. We expect to have a prototype ready for launch at a large international dental research meeting in July 2008. Once we complete our clinical testing phase, we should have devices ready for sale by fall 2009.

Q: How much seed capital did you have when you launched the business and how did you get it?

A: Our seed funding and support has come primarily from the Ontario Centres of Excellence. This agency of the Ontario Ministry of Industry and Innovation has been

involved from the beginning providing with funding and guidance. Through my consulting company, I have contributed to this project as well, both with hard dollars and in-kind contributions. The Department of Mechanical and Industrial Engineering and research resources available to Dr. (Andreas) Mandelis have also contributed human power and in-kind support.

Q: What's been your biggest success and failure so far?

A: Each step of the research process has been exciting. One of our current projects involving detecting early areas of decay around filling materials has been most challenging. Fortunately, we have not had failures but research

is both challenging and stimulating.

Q: What are the biggest challenges facing your business?

A: There are two big challenges facing our business. Our first challenge is in educating the dental community and public on the ability of these new technologies to detect early areas of decay. Once found, treatment would involve remineralization and not the placement of filling materials. We are hoping that the pharmaceutical industry will provide the remineralization solutions in the form of tooth pastes, varnishes or gels. The other major challenge is finding secure funding and support to bring our device to market.

EXPROPRIATIONS ACT

NOTICE OF APPLICATION FOR APPROVAL TO EXPROPRIATE LAND

IN THE MATTER OF an application by Toronto and Region Conservation Authority for approval to expropriate land being comprised of: In the City of Toronto, formerly Township of Pickering, being PIN 06507-0018(LT), composed of all of Block B, Registered Plan 360; Subject to easement over all of Block B, Registered Plan 360, as set out in TB176976, TP224546, TP81752 and SC617595. for the purposes of constructing Phase 2 of the Port Union Waterfront Improvement Project in the City of Toronto.

NOTICE IS HEREBY GIVEN that the application has been made for approval to expropriate all title and interest in lands in the City of Toronto, comprised of and described as follows:

- (1) The interest, if any, of **Arthur Thomas Chester** in the lands described as:
In the City of Toronto, formerly Township of Pickering, being PIN 06507-0018(LT), composed of all of Block B, Registered Plan 360; Subject to easement over all of Block B, Registered Plan 360, as set out in TB176976, TP224546, TP81752 and SC617595.
 - (2) The interest, if any, of **Josephine Daley** in the lands described as:
In the City of Toronto, formerly Township of Pickering, being PIN 06507-0018(LT), composed of all of Block B, Registered Plan 360; Subject to easement over all of Block B, Registered Plan 360, as set out in TB176976, TP224546, TP81752 and SC617595.
 - (3) The interest, if any, of **Duncan James Keenan and Della Dorothy Alice Keenan** in the lands described as:
In the City of Toronto, formerly Township of Pickering, being PIN 06507-0018(LT), composed of all of Block B, Registered Plan 360; Subject to easement over all of Block B, Registered Plan 360, as set out in TB176976, TP224546, TP81752 and SC617595.
 - (4) The interest, if any, of **Robert Thomas Keenan** in the lands described as:
In the City of Toronto, formerly Township of Pickering, being PIN 06507-0018(LT), composed of all of Block B, Registered Plan 360; Subject to easement over all of Block B, Registered Plan 360, as set out in TB176976, TP224546, TP81752 and SC617595.
 - (5) The interest, if any, of **Lisa Fung Zid** in the lands described as:
In the City of Toronto, formerly Township of Pickering, being PIN 06507-0018(LT), composed of all of Block B, Registered Plan 360; Subject to easement over all of Block B, Registered Plan 360, as set out in TB176976, TP224546, TP81752 and SC617595.
- Any owner of lands in respect of which notice is given who desires an inquiry into whether the taking of such land is fair, sound and reasonably necessary in the achievement of the objectives of the expropriating authority shall so notify the approving authority in writing,
- (a) in the case of a registered owner, served personally or by registered mail within thirty days after he/she is served with this notice, or, when he/she is served by publication, within thirty days after the first publication of the notice;
 - (b) in the case of an owner who is not a registered owner, within thirty days after the first publication of the notice.

The approving authority is:

The HONOURABLE DAVID RAMSAY
MINISTER OF NATURAL RESOURCES
Province of Ontario
(Approving Authority)
6th Floor, Room 6630, Whitney Block
99 Wellesley Street West
Toronto, Ontario
M7A 1W3

DATED this 18th day of June, 2007.

Toronto and Region Conservation Authority
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